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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,014	01/29/2004	John C. Kosco	030737	4726

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EXAMINER

WYSZOMIERSKI, GEORGE P

ART UNIT	PAPER NUMBER
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1742

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/767,014

Applicant(s)

KOSCO, JOHN C.

Examiner

George P. Wyszomierski

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-19,38-67,79-84,93,94 and 99-104 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 101-104 is/are allowed.
- 6) ☒ Claim(s) 1,3-17,19,38-64,66,67,79-84,93,94,99 and 100 is/are rejected.
- 7) ☒ Claim(s) 18,50 and 65 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1. In view of the papers filed February 1, 2005, it has been found that this nonprovisional application, as filed, through error and without deceptive intent, improperly set forth the inventorship, and accordingly, this application has been corrected in compliance with 37 CFR 1.48(a). The inventorship of this application has been changed by adding Peter G. Imbrogno to the list of inventors.

The application will be forwarded to the Office of Initial Patent Examination (OIPE) for issuance of a corrected filing receipt, and correction of Office records to reflect the inventorship as corrected.

Claim Interpretation

2. The phrase "low-alloy iron-containing" is not being interpreted by the examiner as permitting or prohibiting any specific numerical value(s) of alloying elements present in materials subjected to the claimed process.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3-6, 9, 15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Lohman et al. (U.S. Patent 4,121,927).

Lohman discloses a process comprising the steps as presently claimed, i.e. preparing a composition within the boundaries of claims 3 and 4, compacting, sintering, shot peening, forging, reheating, quenching and tempering under conditions as recited in the instant claims, to achieve at least 98% theoretical density; see example 1 of Lohman. With respect to "low-alloy iron-containing" material, claim 3 of Lohman indicates that materials containing as little as 4.35% alloying elements may be subject to this process. Thus, all aspects of the claimed invention are held to be fully disclosed by Lohman et al.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 7, 8, 10-14, 16, 93 and 94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lohman et al.

The Lohman disclosure does not specify some of the numerical ranges as presently claimed, and does not discuss pre-sintering or a surface essentially free of finger oxides. These differences are not seen as resulting in a patentable distinction between the prior art and the claimed invention because:

a) With respect to claims 7 and 8, the process disclosed by Lohman would include processes that employ shot having the diameters as presently claimed. In general, the

recitation of a dimension does not render a process patentable in the absence of evidence of criticality of the claimed dimension.

b) With respect to claims 10-14, 93 and 94, Lohman does not disclose the specific depth at which the density of e.g. 99.3% was measured. However, it is a reasonable assumption that the density of the prior art products is at the levels disclosed therein at a point near the surface of the material, i.e. at a depth within the ranges presently claimed. Also, this level of 99.3% is taken by the examiner to be equivalent to "full density" as recited in claims 14 and 93.

c) With respect to claim 16, the sintering performed in the prior art is not an instantaneous process but rather one which occurs over a period of time. The earlier portion of the prior art sintering process can be considered equivalent to the pre-sintering as presently claimed.

Thus, a prima facie case of obviousness is established between the disclosure of Lohman et al. and the presently claimed invention.

7. Claims 38-49, 51-64 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lohman et al. in view of Kosco (U.S. patent 6,338,747).

The Lohman patent, discussed above, discloses or renders obvious all of the presently claimed process steps for reasons as set forth in items 6 and 8 supra. Lohman does not disclose making gear teeth having a root region and flank region as presently claimed. Kosco indicates that it was known in the art, at the time of the invention, to form gear parts by a process which includes compacting, sintering, and mechanical working of a powder metallurgy material in order to produce a substantially fully densified product, i.e. a process substantially the same as that described by Lohman. Further, the mechanical working of Kosco may include

shot peening; see claim 49 of Kosco. These teachings of Kosco would have motivated one of ordinary skill in the art to perform the process of Lohman et al. upon material for gears.

8. Claim 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lohman et al. in view of Kosco, as applied to claim 66 supra, and further in view of Bengtsson et al. PG Pub.No. 2003/01555041).

The Lohman and Kosco patents do not disclose decarburizing following sintering as required in the instant claim. Bengtsson indicates that it was known in the art at the time of the invention to decarburize a powder metal material that had been subjected to compacting and sintering. Bengtsson further discloses the advantages of such a step when making highly densified materials for use as gears. Thus, it would have been considered an obvious expedient for one of ordinary skill in the art to include a decarburization step when producing gears (as disclosed by Kosco) by the process as described by Lohman et al.

9. Claims 19, 79-84, 99 and 100 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lohman et al. in view of Kosco. (This is a new ground of rejection with respect to claims 80-84).

The prior art, discussed supra, does not disclose the plating step as required by claims 19, 99 or 100, and does not disclose the welding or brazing step as required by instant claim 79. These differences are not seen as resulting in a patentable distinction between the prior art and the claimed invention because these steps as claimed are nothing more than generic metal processing steps. The inclusion of such steps in a metal treatment process, without limitation on the purpose, conditions, or result of these step(s) in a particular context, cannot be said to patentably distinguish such a process from known processes in the prior art, such as those of

Lohman or Kosco. With respect to claims 80-84, the remarks made in item 6(a) and 6(b) supra apply equally as well in this instance. Thus, the processes as presently claimed are held to be at best obvious variants of what is disclosed by the combination of Lohman et al. and Kosco.

10. In a response filed November 15, 2006, Applicant alleges that the claimed invention can be distinguished from the Lohman patent in that the instant claims are limited to processes involving "low-alloy iron-containing" materials which it "is understood" contain no more than 8% alloying elements, while all of the examples of Lohman contain considerably more than 8% alloying elements. Applicant's arguments have been carefully considered, but are not persuasive of patentability because nothing in any of the instant claims recite an 8% limit of alloying elements, nor is any specific definition present in the specification that would imply an 8% limit on alloying elements. Further, even if the claims were to be interpreted as implying an 8% limit, this would still fall within the purview of Lohman, particularly claim 3 of Lohman.


11. Claims 101-104 are allowable over the prior art of record, and claims 18, 50 and 65 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose or suggest shot peening, surface rolling, or honing to introduce compressive stress into a portion of the surface, in combination with the other steps as required by the instant claims.

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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Wyszomierski whose telephone number is (571) 272-1252. The examiner can normally be reached on Monday thru Friday from 8:00 a.m. to 4:30 p.m. Eastern time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on (571) 272-1244. All patent application related correspondence transmitted by facsimile must be directed to the central facsimile number, (571)-273-8300. This Central FAX Number is the result of relocating the Central FAX server to the Office's Alexandria, Virginia campus.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


GEORGE WYSZOMIERSKI
PRIMARY EXAMINER
GROUP 1742

GPW
January 18, 2007